APPENDIX B
CURRENT REQUIREMENT TESTING

B-1. Required current.

A critical element in designing galvanic and impressed current cathodic protection systems is the current required for complete cathodic protection. Complete cathodic protection is achieved when the structure potential is -0.85 volt with respect to a copper-copper sulfate reference electrode.

B-2. Sample test.

Current requirement tests are done by actually applying a current using a temporary test setup, and adjusting the current from the power source until suitable protective potentials are obtained. Figure B-1 shows a temporary test setup. In this setup, batteries can be used as the power supply, in series with heavy-duty adjustable resistors. The resistors can be adjusted to increase the current until the potential at the location of interest, such as point A in figure B-1, is at -0.85 volt with respect to a copper-copper sulfate reference cell. The current supplied is the current required for cathodic protection. The effectiveness of the insulating joints shown in figure B-1 can also be tested. The potentials at points B and C are measured, first with the current interruptor switch closed, then with it open. If there is any difference between the two readings at either point, the joint is not insulating completely.

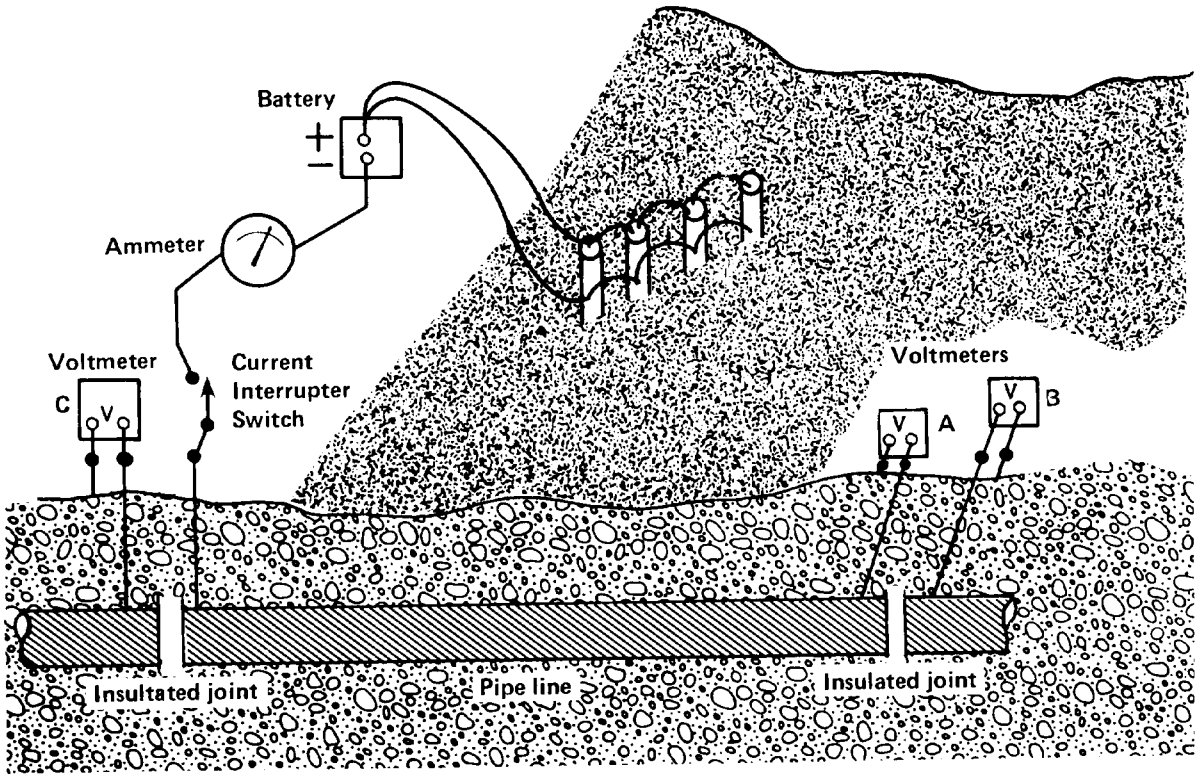

Figure B-1. Current requirement test on pipeline